S/125/60/000/012/004/014
A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

angle in cross connections as well as to burns in machine grips during resistance welding. It is recommended to prevent burns by using electrodes with a wide contact surface, to raise the gripping effort, to carefully clean the surface of electrodes and rods, and to reduce the current density in these spots, which is possible by not only conducting current to the bottom electrodes but also to the upper hold-downs made from copper alloy. In view of the high sensitivity to heating time with butt welding, preheating should be carried out, (not too drastically) - e.g. continuous fusing is not premissible - for chilling in the heat-affected zone reduces strength through the formation of martensite spots (Fig. 3) which affects deformability and thus causes cracks. The formation of martensite can be prevented by heat treatment between the electrodes of resistance welding machines fitted with special automatic devices. [Abstracter's note: No details of such devices are mentioned]. The optimum welding process conditions were found in experiments in an АСИф-75 (ASIF-75) welder with a recorder which enabled the duration and temperature of preheating, the magnitude of upsetting, the number of preheating cycles, and the total welding time to be determined. The optimum values of the following major parameters were determined: setting length $l_{уст}$.

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S/125/60/000/012/004/014
A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

fusion length $l_{опл}$, and upsetting length l_{oc}, as well as the transformer stage. The optimum process was determined by the shape of the curves of breaking load, bending angle and impact strength in butt joints. For medium-diameter reinforcement rods the $\frac{l_{уст}}{d}$, $\frac{l_{опл}}{d}$ and $\frac{l_{oc}}{d}$ values must be 2.8; 0.7 and 0.35 respectively. Butt joints in 20 and 28 mm diameter rods were so welded in ASIF-75 and MCP-100 (MSR-100) welders. In spot welding of cross joints the weldability of 30KhG2S steel was much lower than of Ст.5 (St.5), and the highest possible mechanical strength was obtained with about 2 sec. holding (St.5 requires three times as much holding). With St.5 rods, spot welded connections can be obtained with mechanical strength not below the strength of the base metal, regardless of the transformer stage, but in 30KhG2S spot welds the strength can drop drastically and be very uneven. The cause is the presence of martensite and heterogeneous structure. The properties of cross joints can appearantly be improved by heat treatment in the welding machine (between electrodes) (Ref. 3) (A. Ya. Brodskiy, P.I. Sokolovskiy, A.M. Fridman, "Avtomaticheskaya svarka", No. 3, 1958). Conclusions: 1) Resistance welding with 30KhG2S reinforcement steel is more difficult than with other Soviet reinforcement steel grades, but butt joints

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S/125/60/000/012/004/014
A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

are possible with ultimate strength not below the standard minimum for this steel. 2) Smooth Cr.3 (St.3) steel rods can be joined with 30KhG2S rods by spot welding into cross joints without weakening the rods. Cross joints of 30KhG2S with 30KhG2S have not more than 86% of initial metal strength before welding. 3) Brittleness is the drawback of all joints in 30KhG2S steel rods made by resistance welding, but it may be eliminated by heat treatment between electrodes. There are 6 figures and 3 Soviet references.

ASSOCIATIONS: TsNII stroitel'nykh konstruktsiy ASiA SSSR (TsNII of Construction Frameworks AS and A USSR). A.Ye. Prodskiy and A.M. Fridman: NII zhelezobeton pri Mosgorispolkome (Scientific Research Institute for Reinforced Concrete at Moscow City Executive Committee). Ye.Z. Yermanok: MVTU imeni Baumana (MVTU imeni Bauman). S.A. Fralov

SUBMITTED: March 3, 1960

Card4/4

FROLOV, S.A.

[Surfaces, their characteristics, methods of formation and representation on projection diagrams] Poverkhnosti, ikh svoistva, sposoby obrazovaniia i izobrazheniia na epiure; uchebnoe posobie. Moskva, Mosk. vysshee tekhn.uchilishche, 1962. 19 p. (MIRA 17:3)

S/145/62/000/010/001/006
D263/D308

AUTHOR: Frolov, S.A., Candidate of Technical Sciences, Docent

TITLE: Ways of automation of graphical solution of problems

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 10, 1962, 5-7

TEXT: The article deals, in general terms, with the basic elements which use means offered by electronics and computation technique. The basic scheme consists of an electronic calculating machine which receives data in the form of impulses from the reading instrument and then transmits the results to the recording instrument. Optical-mechanical devices or electronic tubes can be employed for both instruments. Two methods of solving stereometric problems are proposed. In one the machine, having obtained coordinates of points describing geometrical forms, composes equations of these forms analogically to the equations stored in its 'memory'; it solves equations jointly (every time a system of two equations only). The other method employs the diagram technique,

Card 1/2

Ways of automation ... S/145/62/000/010/001/006
D263/D308

where only flat forms are dealt with; this method is more practicable. There is 1 figure.

ASSOCIATION: MVTU im. N.E. Baumana

SUBMITTED: September 20, 1961

Card 2/2

FROLOV, S.A., kand.tekhn.nauk

Topological method for determining the line of intersection of surfaces. Izv.vys.ucheb.zav.; mashinostr. no.1:81-88 '61. (MIRA 14:4)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.
(Topology) (Surfaces)

FROLOV, S.A., kand.tekhn.nauk, dotsent

Automatic reading of a mechanical drawing. Izv.vys.ucheb.zav.; mashinostr. no.8:5-9 '63. (MIRA 16:11)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.

FROLOV, S.A.; OSADCHENKO, V.A., inzh., retsenzent; TUCHKOVA, L.K., inzh., red.; MAKAROVA, L.A., tekhn. red.

[Methods for transforming orthogonal projections] Metody preobrazovaniia ortogonal'nykh proektsii. Moskva, Mashgiz, 1963. 142 p. (MIRA 17:1)

L 13071-65 EWT(d)/T Pu-4 IJP(c)/ESD(a)-5/AFETR/ASWL/AFWL(p)/SSD/

AFTC(b)/ESD(dp)

ACCESSION NR: AT4046526 S/2976/64/000/004/0137/0143

AUTHOR: Frolov, S. A.

TITLE: Algorithms for the graphic solution of problems on electronic digital computers

B

SOURCE: Moscow. Vy*sshaya tekhnicheskoye uchilishche. Vy*chislitel'naya tekhnika, no. 4, 1964, 137-143

TOPIC TAGS: computer, electronic digital computer, computer program, computer algorithm

ABSTRACT: On the basis of an analysis of the structure of the algorithm, elementary graphic operations are worked out for the solution of problems on electronic digital computers. "Counting schemes" of the machine solution are given for finding the sections of the simplest spatial bodies, a method for assigning surfaces to the machine is discussed, and a solution is proposed to the problem of selecting a rational algorithm, adequate to the machine solution of problems of a graphic character. The widely held concept that the basis of the graphic method consists of various geometric structures reflects only its formal aspect, it being emphasized that the graphic solution actually consists in locating

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L 13071-65

ACCESSION NR: AT4046526

0

in a definite sequential order, the point of intersection of two lines. Two conditions are advanced which must be kept in mind in the development of the algorithm: it must be constructed on the basis of the logic of the graphic methods of solving the problem, and the execution of analytical operations is permissible only in cases involving equations for straight lines and circumferences. By following the method proposed in this article, an algorithm can be written in the symbolism of elementary graphic operations for the graphic solution of any engineering problem; thus, for example, in order to determine the buoyancy, stability and unsinkability of a vessel, one must know the displacement of the vessel, the coordinates of the center of gravity and the center of buoyancy at different levels and waterline positions. In turn, the author demonstrates that the determination of each of these parameters can be reduced to a one-time solution of a problem involving the finding of the conjunction of two material points. Orig. art. has: 1 table, 1 figure and 13 formulas.

ASSOCIATION: none

SUBMITTED: 00 NO REF SOV: 004 OTHER: 000

SUB CODE: DP ENCL: 00

2/2

FROLOV, S.A., doktor tekhn. nauk

A method for graphic solutions of problems using an electronic digital computer. Izv. vys. ucheb. zav.; mashinostr. no.7:5-9 '65. (MIRA 18:12)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni N.E. Baumana. Submitted December 23, 1964.

[illegible]V, S.D., Cand Tech Sci --(diss) "Study [illegible] Flows in the Grill Blades of [illegible] Turbo[illegible]generator." [illegible], 1[illegible]. 15 pp (Min of Higher Education USSR. [illegible] V.I. Lenin), 150 copies. (KL,20-58,121)

- 26 -

PROLOV, S.D.

S/147/59/000/04/020/020
E031/E413

AUTHOR: Zolotukhin, V.K.

TITLE: The Scientific-Technical Conference at Khar'kov Aviation Institute

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1959, Nr 4, pp 161-165 (USSR)

ABSTRACT: In May 1959, the 16th Conference of Professorial and Teaching Staff took place.

Card 5/11

Strength of Aircraft Section.
"On the Theory of Bending of Thin-Walled Columns" by Docent, Candidate of Technical Sciences L.P.Vinokurov; "The Simulation of Static Experiments on Thin-Walled Structures" by Candidate of Technical Sciences L.A.Kolesnikov and Senior Instructor V.K.Zolotukhin; "The Bending of Beams Framing an Opening" by Candidate of Technical Sciences L.A.Kolesnikov; "The Influence of the Rigidity of Ribs and Beams on their Bending" by Assistant N.A.Sheloxov; "The Calculation of the Bending of Rectangular Plates by the Discrete Method" by Assistant Yu.P.Petrov; "The Calculation of Cylindrical Shells by the Method of Discrete Variables" by Aspirant N.I.Gur'yev.

Card 6/11

Engine Construction Technology Section.
"The Choice of a Scheme for a Hydraulic Servo-System for the Automation of Welding Processes" by Assistant V.V.Balatskiy; "An Investigation of the Process of Polishing by an Abrasive Belt" by Senior Instructor, Candidate of Technical Sciences V.N.Verezub; "The Investigation of the Operation of a Pneumatic-Hydraulic Plant" by Assistant V.I.Bastyev; "A Static Analysis and Calculation of the Accuracy of the Technological Processes of Machining" by O.M.Parkhomenko; "The Automatic Welding of Long Panels" by Candidate of Technical Sciences L.P.Kanakov; "Prospects in the Use of Specialized Computers for the Determination of the Optimum Geometry of Cutting Tools" by Docent, Candidate of Technical Sciences V.P.Kosharnovskiy; "The Spreading of the Experience of Innovators and the Classification of Organizational-Technical Measures in Machine Construction" by Senior Instructor M.M.Apanovich; "Features of Measurable Abrasion of a Cutting Tool in Fine Sharpening" by Assistant V.N.Malikov; "An Investigation of the Process of Compression at High Velocities of Deformation" by Docent, Candidate of Technical Sciences A.K.Mayev; "The Standardization of Vibration Effects on the Human Organism in Aircraft Production" by Senior Instructor V.D.Ivanov.

Card 7/11

Theory and Construction of Aircraft Engines and Propellor-Driven Machines Section. "The Investigation of the Flow Between the Inlet and Outlet Valves of a Turbine" by Instructor, Candidate of Technical Sciences V.N.Yershov; "The Variation in the Stage Parameters of an Axial Compressor in Accordance with the Size of the Radial Clearance" by Assistant A.N.Anyutin; "On the Problem of Non-Stationary Heat Transfer" by Assistant S.D.Prolov; "The Influence of an Electric Field on the Flame of a Burner" by Senior Engineer P.P.Kostenko; "Calculation of the Temperature Compensation of Capacitance Pressure Pick-Ups" by Assistant L.Ya.Astaf'yev.

Aerohydrodynamics Section.
"Ideal Hypersonic Flow Round a Body" by Assistant V.I.Kholyavko; "The Control of the Boundary Layer of a Wing by Perforation of the Leading Edge" by Assistant Ye.P.Vachenov; "The Gas-Hydraulic Analogy and its Application" by Senior Instructor D.A.Munshtukov; "The Aerodynamic Investigation of Wing Profiles for Small Reynolds Numbers" by Engineer Yu.F.Veik.

S/285/63/000/002/008/012
A052/A126

AUTHOR: Frolov, S.D.

TITLE: The effect of secondary flows on the velocity of circulation distribution along the blade in straight grates

PERIODICAL: Referativnyy zhurnal. Otdel'nyy vypusk. 49. Turbostroyeniye, no. 2, 1963, 15, abstract 2.49.88. (Tr. Khar'kovsk. aviats. in-ta, no. 20, 1960, 29 - 47)

TEXT: A theoretical and experimental study of the flow in a flattened-profile grate is presented. In the theoretical study the liquid is taken for non-viscous and incompressible and it is assumed that the secondary flow inside the interblade grate channel is caused by two vortex strings of opposite sense of rotation having equal intensity and located at the ends of the blades. The conformal conversion method is used in investigating the flow caused by a couple of vortices in a rectangular region simulating the section of the interblade grate channel. A comparison is made between calculated and experimental circulation distribution over the height of a blade working in the system of a flattened grate. It is shown that the results

Card 1/2

of the calculation and experiment qualitatively always agree. However, quantitatively the results of a comparison of the calculation with the experiment are different for different grates. The best coincidence of the rated and experimental curves is observed in the case of dense grates formed of blades of high elongation. The results of the secondary-flow investigations in flattened grates can be applied only to the flow in the guiding apparatus of turbo-machines with large relative diameter of the plug. A detailed investigation was also carried out on the effect of conditions of the formation and state of the boundary layer on the face walls of the grate on the vortex characteristics in the flow at the ends of grate blades. It is shown that an increase of profile losses has no essential effect on the intensity of secondary flows.

B. Dorogov

[Abstracter's note: Complete translation.]

ACC NR: AP6034905 SOURCE CODE: UR/0382/66/000/002/0032/0038

AUTHOR: Dikiy, G. P.; Kostenko, P. P.; Selivanov, V. G.; Frolov, S. D.

ORG: none

TITLE: Conducting gas flow in an annular duct in the presence of an axial magnetic field

SOURCE: Magnitnaya gidrodinamika, no. 2, 1966, 32-38

TOPIC TAGS: axial magnetic field, gas flow, laminar flow, annular duct, magnetohydrodynamic generator

ABSTRACT: The authors attempt an analytical calculation of the influence of azimuth currents on the electrical efficiency of an MHD converter. Approximate values of the radial-velocity component and the gas temperature are simultaneously calculated and given. The paper examines the laminar flow of a conducting gas in an annular duct of an MHD converter in the presence of an axial magnetic field. The above-mentioned influence of azimuth currents on the efficiency of the generator was found. Orig. art. has: 8 formulas.

SUB CODE: 20/SUBM DATE: 09Jun65/ ORIG REF: 003/ OTH REF: 002/

Card 1/1 UDC: 533.95:538.4

L 17076-63 EPA(b)/EWT(1)/BDS/ES(v) AFDC/AFFTC/ASD/AFMDC Pd-4/Pe-4
S/124/63/000/004/012/064
64

AUTHOR: Frolov, S. D.

TITLE: Effect of secondary flows on distribution of velocity circulation along the stroke of blades in rectangular arrays

PERIODICAL: Referativnyy zhurhal, Mekhanika, no. 4, 1963, 30, abstract 4B194 (Tr. Khar'kovsk. aviats. in-ta, no. 20, 1960, 29-47.)

TEXT: For a viscous, incompressible liquid, the author considers the effect of secondary currents within an intra-blade channel upon the distribution of circulation along the blades' span in rectangular arrays. The data derived on the distribution of circulation are compared with the test data for various types of arrays. Concepts are adduced on the effect of a boundary layer on the end-walls upon the flow at the end of the blades. S. M. Gorlin.

[Abstracter's note: Complete translation.]

Card 1/1

FROLOV, S.F.

Making high-quality carbon-manganese steels in acid electric furnaces. S. F. Frolov. *Liteinoe Proizvodstvo* 1952, No. 9, 2-3. ~~Freedom from~~ nonmetallic stringers and uniform grain size are achieved in steels contg. C 0.30-0.40, Mn 0.85-1.0, max. of both S and P 0.07%, melted in a 5-ton arc furnace by using a high voltage. The procedure first produces a melt contg. 0.20-0.30% C above the desired final value, followed by addn. of ore, with oxidation for 20-25 min. at a rate such that C decreases not less than 0.60% C/hr., slagging off, reforming a slag of sand 2, limestone 1, and firebrick 0.1 part, after which the bath is reduced with a mixt. of 1.5 parts of 45% FeSi and 1 part charcoal added in proportion of 0.75-1.0% of the weight of the bath. It is held thus for 20-25 min., after which the final deoxidation is effected by addn. of Al into the charge.

J. D. Gat.

PROLOV, S. F.

(2)

Mass production of antifrictional malleable iron. Ya. T. Lifshits and S. F. Prolov. *Liteinoe Proizvodstvo* 1953, No. 9, 31-2.—Malleable iron having a hardness of 167-194 Brinell and a structure consisting of temper C, 35-80% pearlite, and ferrite can fully replace bronze for frictional applications. The iron suitable for the purpose, contg. C 2.67-2.73, Si 1.08-1.22, Mn 0.44-0.46, S 0.11-0.13, and P 0.12% can be sand cast, but preferably should be centrifugally cast at 1580-1600°. With the latter practice the iron remained white even when 35-40 mm. thick and could be completely malleabilized following malleabilizing cycles from 180-90-hr. duration. Sand casting requires a longer treatment for complete decompn. of cementite. Both types of castings are then strengthened by placing them in a furnace at 825°, cooling to 680-700°, heating to 820° in 26 min., soaking for 1 hr. 40 min., and air cooling. This treatment brings their hardness to 150 Brinell and adjusts pearlitic structure.

J. D. Gat

Frolov, S. F.

15962* (Results of Service Tests on Anti-Friction Cast-Iron Bushings in Machine-Tool Equipment.) Rezul'taty ekspluatatsionnykh ispytaniĭ vtulok iz antifriktsionnogo chuguna v stanochnom oborudovanii. Ia. G. Lifshits and S. F. Frolov. *Vestnik Mashinostroeniia*, v. 34, no. 7, July 1954, p. 48-50.

Condition of bushings in various lathe and press parts after service up to 8000 hr. Table.

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1

Rostov Inst Agric. Machine Const.

Zavod "Rostsel'mash im. Stalin

KHOROSHEV, I.I.; SHAPIRO, A.A.; FROLOV, S.F.; TOPUZ, V.A.

Redesign of electric holding furnaces for the annealing of malleable cast iron. Lit. proizv. no.5:12-14 My '62. (MIRA 16:3)
(Electric furnaces) (Annealing of metals)

VINOGRADOV, V.M., dotsent; D'YACHENKO, P.K., kand. med. nauk; TIMOFEYEV, V.V., kand. med. nauk; FROLOV, S.F., kand. med. nauk

Fundamental aspects of the use of gangliolytics in surgery. Vest. khir. 93 no.9:93-100 S '64. (MIRA 18:4)

1. Iz kafedry farmakologii (zav. - prof. S.Ya.Arbuzov) i kliniki obshchey khirurgii (nachal'nik - prof. V.I Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova i kafedry torakal'noy khirurgii i anesteziologii (zav. - prof. S.A.Gadzhiyev) Leningradskogo ordena Lenina instituta usovershenstvaniya vrachey imeni Kirova.

ARBUZOV, S.Ya., prof.; FROLOV, S.F., kand. med. nauk

Development of antidote therapy in cyanide poisoning; a review of literature. Voen.-med. zhur. no.6:29-33 '64. (MIRA 18:5)

L 20697-66 EWT(m)

ACC NR: AP6007763 SOURCE CODE: UR/0205/66/006/001/0149/0150

AUTHOR: Arbuzov, S. Ya.; Novoselova, G. S.; Frolov, S. F.; Shmuskovich, N. N. 30 B

ORG: Military Medical Academy im. S. M. Kirov, Leningrad (Voyenno-meditsinskaya akademiya)

TITLE: The radiation protection effect of apilac in an experiment on animals

SOURCE: Radiobiologiya, v. 6, no. 1, 1966, 149-150

TOPIC TAGS: irradiation resistance, irradiation damage, x ray irradiation, radiation protection, cystamine, apilac

ABSTRACT: The radiation protection effect of apilac (a substance secreted by bees) was studied in experiments on white mice, white rats, and rabbits. The animals were subjected to x rays in lethal and sublethal doses (700—800 rad). Apilac was injected intraperitoneally in the mice and subcutaneously in the rats and rabbits in doses described as nontoxic for animals and humans alike. The effectiveness of apilac was measured in terms of survival, weight, mean longevity, clinical course of radiation sickness, quantitative changes in peripheral blood, and the relative

Card 1/2 UDC: 628.58; 577.391

L 20697-66
ACC NR: AP6007768

weight of the animals surviving the irradiation. It was found that a single injection of apilac had no protective effect. When apilac was injected prior to and seven days after irradiation, the number of survivors was higher. On the 30th day after irradiation, 40% of the mice treated with apilac were still alive while the untreated control group had all perished. Sixty percent of the mice treated with cystamine were still alive during the same time span. A combination of cystamine and apilac was found to be less effective than apilac alone. Complete data on the effect of apilac, cystamine, and a combination of the two on mice, rats, and rabbits are presented in tabular form. It is concluded that apilac has a pronounced protective effect on mice, rats, and rabbits that have been exposed to lethal and sublethal x-ray dosages. Orig. art. has: 1 table. [14]

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 4223

Card 2/2 BK

FROLOV, S.G.; SHIF, Sh.L.; DESYATUN, I.I.; SEMENOV, A.I.; SKRYARENKO, B.S.

Mechanization of veneer manufacturing shops. Bum.i der.prom. no.4:5-10 O-D '62. (MIRA 15:12)

1. Darnitskiy fanernyy zavod.
(Darnitsa--Veneers and veneering)

FROLOV, S.I.

Study of porcelain manufacture in the ninth grade. Politekh. obuch. no.11:23-26 N '58. (MIRA 11:12)
(Novgorod Province--Porcelain) (Field work (Educational method))

FROLOV, S.P.

USSR/Engineering - Machine tools

Card : 1/1 Pub. 128 - 13/32

Authors : Lifshits, Ya. G. and Frolov, S. P.

Title : Results of exploitational testing of machine bushings made of an anti-friction wrought iron.

Periodical : Vest. mash. 34/7, 48 - 50, July 1954

Abstract : The Rostov Institute of Machine Construction, in cooperation with "Rostsel'mash" factory, have conducted extensive tests on the use of wrought iron bushings in lathe equipment. Performance characteristics of wrought iron bushings under operational conditions, and their resistance to wear, are indicated. Table.

Institution : ...

Submitted : ...

FROLOV, SERGEY PETROVICH and N. A. KISELEV.

Kochegar morskogo sudna. Odobreno v kachestve uchebn. posobiia... Moskva, Morskoi transport, 1947, 239 p. diagrs.

The ship stoker.

NjP WaU DLC: VM749.F76

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953

FROLOV, S.P.

BELYAVSKIY, M.L.; KISELEV, N.A.; FROLOV, S.P.; POLYUSHKIN, V.A., otvetstvennyy redaktor; NELIDOVA, E.S., redaktor; TROFIMOV, A.V., tekhnicheskiy redaktor.

[Manual for a stoker on a sea-going vessel.] Uchebnoe posobie dlia kochegara morskogo sudna. Izd. 2-e, dop. i ispr. Moskva, Izd-vo "Morskoi transport," 1952. 349 p. (MLRA 8:3)
(Steam boilers, Marine)

FROLOV, S.P.

AID P - 5138

Subject : USSR/Aeronautics - education

Card 1/1 Pub. 135 - 23/26

Author : Frolov, S. P., Maj. Gen. of engineering and techn. service

Title : On organization of correspondence schools of engineering

Periodical : Vest. vozd. flota, 10, 86-87, O 1956

Abstract : The importance of organizing the correspondence schools of engineering for the Air Force personnel is stressed by the author.

Institution : None

Submitted : No date

FROLOV, SERGEY PETROVICH

Kochegar morskogo sudna (Ship's stoker, by) S. P. Frolov i N. A. Kiselev. Izd. 3., perer. Pod red. P. I. Ivanova. Moskva, "Morskoy Transport", 1957.

231 p. illus., diagrs., tables.

FROLOV S.P

AID P - 5450

Subject : USSR/Aeronautics - bibliography

Card 1/1 Pub. 135 - 27/31

Author : Frolov, S. P., Maj. General of eng. and tech. service

Title : Automation of aircraft engines

Periodical : Vest. vozd. flota, 1, 84-85, Ja 1957

Abstract : Critical review of the book "Automation of Aircraft Engines" (Avtomatika Aviatsionnykh Dvigateley) by V. A. Bodner, published by State Publishing House of the Defense Industry, 1956, 400 pages.

Institution : None

Submitted : No date

[redacted] KISELEV, Nikolay Aleksandrovich; IVANOV, P.I., redaktor; VOSKRESENSKIY, N.N., redaktor; TIKHONOVA, Ye.A., tekhnicheskiy redaktor.

[Ship's fireman] Kochegar morskogo sudna. Izd. 3-e, perer. pod red. P.I.Ivanova. Moskva, Izd-vo "Morskoi transport," 1957. 231 p. (MIRA 10:11)

(Boilers, Marine)

SAPIRO, David Naftal'yevich; BERTINOV, A.I., doktor tekhn. nauk, prof., retsenzent; FROLOV, S.P., dots., red.; BOGOMOLOVA, M.F., red. izd-va; KARPOV, I.I., tekhn. red.

[Aeronautical electric apparatus and mechanisms]Aviatsionnye elektricheskie apparaty i mekhanizmy. Moskva, Oborongiz, 1962. 359 p. (MIRA 16:3)

(Airplanes--Electric equipment)
(Airplanes--Equipment and supplies)

L 10685-63 EWP(j)/EPF(c)/EWT(m)/BDS--AFFTC/ASD--Pc-4/Pr-4--RM/WW
ACCESSION NR: AP3002402 S/0153/63/006/002/0299/0304

67

AUTHOR: Borodkina, N. I.; Frolov, S. S.; Mol'kova, G. N.

TITLE: Production and investigation of products based on water-soluble condensates of acetone and formaldehyde

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 6, no. 2, 1963, 299-304

TOPIC TAGS: reactivity, water-soluble acetone-formaldehyde condensates, resins, water-soluble condensates and phenol, water-soluble condensates and epichlorohydrin

ABSTRACT: The reactivity of VRK (water-soluble acetone-formaldehyde condensates) products was investigated; high reactivity with amines, phenols, epichlorohydrin and acid anhydrides was found. Conflicting experimental data and theoretical calculations indicate that VRK is not strictly an individual compound and carbonyl groups from other molecules are involved. Resins made from VRK and phenol or VRK and epichlorohydrin harden and can be molded similarly to ordinary phenol-formaldehyde epoxy resins, hence they can be tested under experimental conditions. Orig. art. has: 4 tables and 3 formulas.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut. Kafedra tekhnologii khimicheskikh volokon (Ivanov Institute of Chemical Technology. Department of

Card 1/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000513810008-5"

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Analysis of hyposulfite by means of azo dyes. V. I. Minaev, S. S. Fedorov and G. M. Marinov. *Bull. Inst. Polytech. Ivanovo-Voznesensk.* 15, 151-6(1930).—The analysis of $Na_2S_2O_4$ and its stable deriv. is based upon the reduction of azo dyes by this compd. Into a soln. contg. an excess of the azo dye of known concn introduce a weighed amt of substance contg. $Na_2S_2O_4$. Det. the excess of dyestuff colorimetrically. The azo dyes used were: chrysoine, orange II ($C_{16}H_{11}N_2SO_4Na + 5H_2O$) and others

V. D. Karpenko

Action of formaldehyde and acetic anhydride on viscose rayon. V. I. Minaev and S. S. Frolov. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1, 108-73(1935).—Tests with viscose rayon confirmed essentially the expts. of other investigators (cf. Schenk, *C. A.* 26, 296; 27, 3002; Wood, *C. A.* 30, 1254; 27, 3002) on the action of CH_2O and Ac_2O on cellulose. Better results were obtained by treating viscose rayon with CH_2O vapors and with soln. of CH_2O in Me_2CO than in H_2O. The action of Ac_2O is considerably weaker, the results depending more on the conditions of treatment than with CH_2O. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2.?

Separation of cellulose with chlorine. V. I. Minaev and S. S. Pigiov. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1, 191-203(1935).—In the preliminary communication lab. expts. are described for the sepn. of cellulose from various cellular waste materials by steeping them in H_2O or $Ca(OH)_2$ soln. and treating the products with Cl by the Pomilio-Cataldi method. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Investigation of chlorine methods of separation of cellulose. V. I. Minaev and S. S. Erokov. *Trans. V. I. Mendeleev Chem. Theoret. Applied Chem. Inst.* 2, Pt. 1, 92 pp. (1943), cf. C. A. 30, 8818. Different existing methods are reviewed. The Cl methods of Dutch pat. 15,150 (C. A. 21, 1010) were applied to waste flax tow and other materials. Cellulose obtained from bleached flax waste analyzed: ash, 1.80%; α-cellulose, 98.5%; Cu no., 0.34 (in unbleached material 0.80), resin and wax content, 0.3%. The yield of cellulose was 40.47%.

B. E. Stefanowsky

PROCESSES AND PROPERTIES INDEX

Boiling of mixed textiles in Van-Flanderen apparatus. S. S. Brukov and V. M. Rybakova. *Byull. Ivanovo Nauch. Issledovatel. Tekh. Inst.* 1938, No. 4 5, 81-5; *Khim. Referat. Zhur.* 2, No. 4, 125(1939).—The app. is used for the treatment of crêpes from artificial silk with NaOH or with a caustic soap. The boiled and bleached textiles had high capillarity, slightly decreased strength, high ash content and a high extn. no. The app. preserves the structure of the textiles. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

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PROCESSES AND PROPERTIES INDEX

The dyeing properties of, and methods for recognizing, viscose and cuprammonium fibers. S. S. Frolov. *Tekh. Byull. GUIV* 1939, No. 2, 46-50; *Khim. Referat. Zhur.* 1940, No. 7, 110.—A large no. of mixts. of basic and substantive dyes can be selected which produce a sharp difference in the color of cuprammonium and viscose fibers. The most important of these mixts. are given in a table. Expts. and supplementary observations indicate that the main differences in the dyeing of the two types of fibers are due to the different structures of the fibers. The mixts. of the dyes proposed can be used to det. the structure of viscose fibers and films as well as to control various conditions of the formation of fiber, to det. its hardness and to det. the reasons for the uneven dyeing of viscose rayon.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

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Expressed alkali in the production of viscose fibers. A. Pakshver and S. Prokov... *Tekh. Byull. GUIV* 1939, No. 3, 29-33; *Khim. Referat. Zhur.* 1940, No. 7, 100; cf. *C. A.* 38, 4503[9].—The hemicelluloses contained in the expressed alkali differ in compn. and mol. wt. Various results are obtained in the detn. of hemicelluloses by oxidation with hot $K_2Cr_2O_7$ and H_2SO_4, the results depending on the time of boiling and on the relative proportions of $K_2Cr_2O_7$ and H_2SO_4. The amt. of β-cellulose decreases and that of γ-cellulose increases with time of standing of the expressed alkali. W. R. Henn

COMPOUND ELEMENTS INDEX

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Changes in cellulose during the production of viscose A. Pakshver, S. Erokhov and A. Pilyavov. *Trans. Inst. Chem. Tech. Moscow* (U. S. S. R.) 1940, No. 3, 158-60.—Ordinary standard sulfite cellulose was treated with 18% NaOH in the cold (1 hr. at 20°), and excess alkali washed out. The soly. of cellulose (I) was detd. by immersing a known wt. (approx. 1 g.) of air-dry I in 40 ml. of 10% NaOH at 0° for 45 min., filtering through a No. 1 S boat filter, washing the residue on the filter with 10% alkali, warm and cold H_2O until neutral to phenolphthalein, washing with dil. AcOH and with distd. H_2O, and drying the residue on the filter at 100-3° to const. wt. The moisture content of I was detd. by drying at 100-3°. From these data the percentage soly. of I in 10% NaOH was detd. I was regenerated from alkali cellulose (after mercerization, cutting and sweepening for 24 and 48 hrs.) by washing with distd. H_2O and weak AcOH. From the xanthate the I was regenerated by treating with NaCl soln., washing the residue with weak H_2SO_4 to complete decompn. of the xanthate and the S removed with hot alc. The regenerated I was washed with water and dried in air. From viscose I was regenerated in the form of films. Thin layers of viscose were placed on glass and treated with satd. NaCl and H_2SO_4. The film was freed from acid with water and dried in air. Mercerization of I decreases its soly. in alkalies from 0.13 to 2.08% by removal of the low-mol. fractions. The soly. increases to 2.82% after cutting, to 5.25% after sweepening for 24 hrs., to 11.48% after sweepening for 48 hrs., to 12.85% after xanthation and to 23.08% after dilu. The breaking up of the I structure during soln. is connected with the solvation of the single micelles and I particles in soln. and has a greater effect on the soly. of I in an alk. soln. than the preceding processes of destruction of I during mercerization, cutting and sweepening. The results agree well with the unpublished results of E. M. Lev on changes in the soly. of viscose silk from 25% for the freshly spun fibers to 18.20% for the finished and air-dried fiber and to 10.15% for the fiber dried in driers at 70-80°. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROLOV, S.

The production of simple cellulose ethers in a homogeneous medium. A. Pakshver, S. Frolov and Z. Malysheva. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1940, No. 3, 161-4.—The paper is a preliminary report of alkylating cellulose under conditions similar to those existing in a homogeneous medium and to those described by L. Bock (*C. A.* 31, 8182[2]). Viscose silk, bleached linter (of the Shuiskaya cuprammonium plant) and filter paper were treated with 12 and 18% NaOH. The amt. of added ZnO was 5% of the wt. of the solid base. The expts. were carried out at 5-20° with a 5% concn. of cellulose. At 0° (and lower) viscose silk dissolves rapidly in the base contg. ZnO and forms a yellowish, semitransparent dense mass. Bleached linters form a gel-like mass which contains lumps and fibers. Filter paper apparently dissolves but an examination under the microscope shows only greatly swollen fibers. At room temp. and lower the solns. of the incompletely dissolved products are very stable. By heating to 60-70° (and sometimes to 50°) flakes are formed which dissolve on cooling. Higher concns. of base produce no flakes in spite of the fact that viscose silk dissolves directly in the concd. base. For methylation an excess of Me_2SO_4 (5-10 mols.) was added in small portions with mixing to the cellulose soln. The reaction began at room temp. and proceeded with foaming and a temp. rise of 45-50°. After the reaction the basic medium was neutralized and poured into H_2O at 80°. Methylcellulose sepd. in the form of flakes which were washed with hot H_2O and dried. The flakes dissolved completely in cold H_2O; in hot H_2O they sepd. in the form of a gel and flakes. The viscose cellulose fibers were sol. in cold H_2O and in a no. of org. solvents. The methylated mass from filter paper is completely sol. in H_2O and contained approx. 14% of MeO. The temp. régimé and the time were not accurately detd. (the time of the reaction was 2-3 hrs.) Benzylation produced substances (m. 161°) sol. in alc.-benzene and pyridine and partly sol. in benzene. In benzylation expts. viscose silk was dissolved in 8% NaOH with addn. of ZnO. The reaction was carried out at room temp. and was completed by heating 1.5 hrs. on a water bath. The exact conditions of the expts. were not recorded and the properties of the products were not detd. The described method is suitable for the production of simple cellulose esters sol. in H_2O, since products of small degrees of alkylation (but sol. in H_2O) can be obtained. 13 references.

W. R. Heun

PROCESSES AND PROPERTIES INDEX

The effect of various methods of treatment on the viscosity of nitrocellulose A. Pakshver, S. Frolov and L. Lebedeva. *Trans. Inst. Chem. Tech.* (U. S. S. R.) 1940, No. 3, 165-7.—The starting nitrocellulose (I) contained 11.1% of N. Its η was detd. simultaneously in 0.2, 1.0 and 5.0% acetone solns. The η of the 0.2% soln. characterizes more fully the size of the I mols., and the η of the 5% soln. characterizes the properties of commercial solns. used for the production of nitro lacquers and of motion-picture films. The η of the 5% soln. was detd. at 20° with a 25-ml. standard bulb which is used for measuring the η of cuprammonium solns. of cellulose. The η of 0.2% and 1.0% solns. was detd. in an Ostwald viscometer at 20°. I was (1) boiled for 3 hrs. in 150 parts of distd. water; (2) boiled under the same conditions for 8 hrs.; (3) boiled for 3 hrs. in water contg. some $Ca(OH)_2$; (4) boiled under the same conditions for 8 hrs.; (5) treated for 2 hrs. with 100 parts of a soln. of Na hexametaphosphate (II) in concns. of 10 g./l. at 50°; (6) the same as in 5, but the initial I was preliminarily treated with boiling hard water for 3 hrs.; (7) the same as in 5, but the initial I was treated as in 4; (8) boiled for 3 hrs. with 0.2% soda soln.; (9) boiled for 8 hrs. with 0.2% soda soln. In all cases I was washed with cold water after the treatment, dried in open air and at 50° in a drier. For the detn. of η I was shaken in a mixer. In the last 2 cases the treatment was accompanied by a yellow color of the soln. and of the I. Boiling I with distd. water is accompanied by a decrease of the η of the 5% soln. (by 10% on boiling for 3 hrs. and by 33% on boiling for 8 hrs.), while the η of the 0.2% soln. and the percentage of N in I remained practically unchanged (11.0 and 11.1%). This shows that the size of the I particles and the degree of esterification remained unchanged. Boiling I in hard water increases considerably the η of the soln. (even of the 0.2% solns.). For the 5% solns. the increase of the η was 50% after boiling 3 hrs. and 55% after boiling 8 hrs. Treatment of I with II not only "removes" the excess η acquired by I by boiling it with hard water, but decreases the η below that of the initial I, probably at the expense of the removal of Ca from the ash of the initial product. Treatment of I with soda leads to a sharp decrease of the η and to the emulsification of the nitro group. The expts. showed that the treatment with II is of practical importance, not only for lowering the η of the I, but also for replacing the expensive softened water with hard water during the washing and stabilization of I. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

The utilization of expressed alkali in the production of viscose fibers. A. Pakshver and S. Ipatov. *Izves. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1940, No. 4, 68-72. Alkali recovered by expression in the treatment of cellulose contains much hemicellulose. Viscose prepd. by use of this alkali is more viscous and more difficult to filter, than that prepd. with pure alkali. Expressed alkali had no effect on the ripening of viscose. Nine tables. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

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The dyeing properties and methods for distinguishing viscose and cuprammonium fibers. A. Pakshver and S. Frolov. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1940, No. 3, 173-7.—The principal differences in the dyeing of viscose and cuprammonium fibers are caused by their different structures and especially by the presence of the surface layer on viscose fiber. The following colors were produced by the different mixts. on cuprammonium and viscose fibers, resp.: Rhodamine B Extra + Anil Pure Light Blue FF produces pure blue and red-violet colors; Rhodamine B Extra + Anil Straight Green Zh produces green and pink to red; Rhodamine B Extra + Sirius Blue GG produces pure blue and pink to red-violet. Rhodamine B Extra + Viscose Blue NRF produces pure blue and pink; Rhodamine B Extra + Viscose Sea Blue NB produces blue and red-violet; Rhodamine B Extra + chrysophenine produces yellow-orange and red; Rhodamine B Extra + Icyl Brown GS produces beige and red-violet; safranine + Anil Straight Green Zh produces green and red-brown; Methylene Light Blue + Diamine Pink produces red-violet and blue; Methylene Light Blue + Anil Orange produces gray and blue; auramine + Anil Pure Light Blue produces blue-green and yellow-greenish. The solns. are obtained by mixing equal parts of the dissolved dyes in concns. of 0.5–1.0 g./l. for the basic and 1–3 g./l. for the substantive dyes. The samples are washed with cold water. Nine references. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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The effect of salts of heavy metals on the velocity of decomposition of cellulose xanthate. A. Pakshver, S. Frolov and N. Karegina. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1940, No. 3, 178-80. The object of the expts. was to amplify the results obtained by Danilov and Gintse (C. A. 33, 5170) and to verify the decompn. velocity of Na, Ca, Zn, Ni and Cu cellulose xanthates. A 1-mm. layer of ordinary viscose was placed on a glass plate, coagulated in concd. NaCl soln. for 20 min., washed on the glass with concd. NaCl soln. to complete removal of impurities (sulfides, thiocarbonates, etc.) and treated for 10 min. with a concd. soln. of the corresponding salt ($CaCl_2$, NaCl, $CuCl_2$, $ZnCl_2$). Preliminary expts. showed that a 10-min. reaction is sufficient. The film was decompd. with N H_2SO_4 for a definite time (with a stop watch) and immediately immersed in a 10% NaOAc soln., after which it was immersed for 5 min. in 20 ml. of AcOH and 10 ml. of 0.1 N I soln. The amt. of AcOH and the time of the reaction were detd. by a blank expt. The excess I was titrated with thiosulfate and the percentage of xanthate decompd. calcd. The velocity of the decompn. of xanthate does not increase with aging of the viscose, but decreases slightly. A decrease takes place also with the increase of the ratio α-cellulose NaOH in viscose. The decompn. velocity is detd. by the colloidal properties of the film of the cellulose. The older xanthates form on decompn. with acid a denser surface film of the regenerated cellulose, which retards the decompn. This explains also the effect of the compn. of viscose on the decompn. velocity of the xanthate. $NiSO_4$ retards the decompn. of the xanthate to a smaller extent than does $ZnSO_4$. Therefore $ZnSO_4$ cannot replace $NiSO_4$ in the ppt'g. bath. W. R. H.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Ca

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Determination of the viscosity of alkaline solutions of viscose rayon. A. Pakshver, S. Frolov and E. Pokrovskaya. *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1940, No. 3, 189-91.—Dissolve a sample of air-dry viscose rayon (with a known moisture content) with mixing in a glass contg. 8% NaOH and keep it in a cooling mixt. at -5°. After soln. remove the glass from the cooling mixt., let the temp. rise to 20°, pour the soln. into a bulb used for the detn. of η of cuprammonium cellulose soln., keep it in a thermostat at 20° and det. the η of cellulose (I). One percent solns. of I in a base can stand without the sepn. of I from the soln. for 10-14 hrs., after which a turbidity and white flakes appear. Standing of the soln. in open air and air blowing through the soln. do not change the η of the basic soln. I dissolves somewhat more rapidly in an 8% soln. of NaOH contg. 1% of ZnO, and the sepn. of I takes place after a longer period of time. The relative η of the I soln. in an 8% base is less than that in a similar base contg. 1% of ZnO. The basic solns. of I are considerably more stable than are the cuprammonium solns. and they can be used in some cases (in investigating the properties of viscose silk and staple fiber) for measuring the η.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROLOV, S.

Hygroscopicity and elongation (in water) of viscose and cuproammonium silk fibers. A.B. Pakshver, S.S. Frolov, and N.N. File'ova. Tekstil. Prom. 10, No. 12, 18-20 (1950).

Certain properties of viscose and cuproammonium rayon are detd. by the mol. structure of their fibers which is conditioned by spinning, dye9ng, etc. Hygroscopicity and elongation data of these fibers treatedwith aq. soln. of NaOH at 20° are discussed.

Elissbeth Berabash

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Solubility of cellulose in ten % solution of alkali. A. B. Pakshver and S. S. Fomina (Lab. Artificial Fibers, Ivanovo Chem.-Tech. Inst.). *Zhur. Prikład. Khim.* 23, 539-5 (1950); *J. Applied Chem. U.S.S.R.* 23, 533-61(1950) (English translation).—Viscose rayon fibers (1 g.), not characterized as to history or specifications, were stirred constantly for 45 min. with 40 ml. 10% NaOH at 20°, after various pretreatments. Soly. was greatest (45%) for wet, undried fibers. Fibers dried at 20, 60, and 110° without stretching were 31, 34, and 28% sol., resp. Fibers dried at 35 and 75% of the av. breaking load (temp. not given) were 19 and 11% sol., resp. Similar data are also given for cuprammonium fiber. Some data are given for treatment times greater than 45 min. J. P. Danehy

MYAGKOVA, G.A.; PAKSHVER, A.B.; FROLOV, S.S.

Absorption of naphthylamine sulfonic acids by nylon fiber. Zhur.prikl.khim. 26 no.9:991-995 S '53. (MLRA 6:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Nylon) (Naphthylamine sulfonic acids)

FROLOV, S.S.

Shrinkage of viscose staple. A. B. Pakshver and S. S. Frolov (Chim. Technol. Inst., Ivanovo). *Tekstil. Prom.* 7, 41-4(1954).—Factors and conditions affecting shrinkage of fabrics made from viscose staple are discussed. Percentage shrinkage is calcd. Elisabeth Barabash

Frolov, S.S.

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Structure of high-molecular substances. VII. Reaction of cellulose hydrate fibers with cuprammonium reagent. B. D. Tukhlov, S. S. Frolov, and A. B. Pakshver. *J. Appl. Chem. U.S.S.R.* ~~[illegible]~~ (1954) (Engl. translation).—See *C.A.* 49, 12310g. B. M. R.

Frolov, S.S.

USSR

/Structure of high-molecular substances. VII. Reaction of cellulose hydrate fibers with cuprammonium reagent. B. D. Tukhlov, S. S. Frolov, and A. B. Pakshver (Chem. Technol. Inst., Ivanovo). *Zhur. Prikkad. Khim.* 27, 907-14(1954); cf. *C.A.* 46, 6326*f*; 49, 10632*c*.—The rate of sorption of Cu and variation of fiber length after immersion into the cuprammonium soln. can be used for characterization of the mol. structure of the cellulosic fiber. When intermol. forces are enhanced, the rates of sorption and dimensional changes are decreased. Addn. of NaOH or other substances which decrease the degree of dissocn. of the cuprammonium reagent leads to the reduction of the rate of sorption of Cu, but also causes a definite increase in the amt. of absorbed Cu at equil. The sorption of Cu can be described by an equation which considers only the rate of diffusion of the reagent into the fiber. The rate of sorption of Cu is given by the coeff. of diffusion, which approximates 10×10^{-10} to 70×10^{-10} sq. cm./sec. Dense structures such as cord silk show the smallest diffusion coeff. while loose structures such as staple cuprammonium fiber have a high coeff. (50 to 70×10^{-10}). Treatment with hot H_2O, dil. acids, 6% alkali with relaxation of the fiber, cause a rise in the diffusion coeff. and rate of Cu sorption. The concns. of NH_4OH and Cu

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B. D. TUKHLOV

within wide limits do not affect the sorption rate; change of the NH_4 concn. from 100 to 200 g/l. slightly retards diffusion. Addn. of NaOH strongly retards Cu sorption; EtOH acts similarly. These effects are explained by 2 simultaneous processes: H bonding between OH groups of cellulose and HO ions or HO groups of the cuprammonium complex; the former process predominates in the presence of NaOH. Addn. of glycerol affects the rate of Cu sorption but slightly. Drop in temp. slightly increases the amt. of absorbed Cu at equil. Hydrolysis of the fiber with dil. H_2SO_4 almost does not affect the rate of Cu sorption but greatly reduces the amt. of Cu taken up at equil. The rate of length-change in an immersed fiber is much smaller than is the rate of Cu sorption. For every 10° rise the rates of length-change and Cu absorption increase by 1.15- to 1.7-fold; this is similar to the behavior of polyamide fibers.

G. M. Kosolapoff

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FROLOV, S. S.

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USSR

Effect of moisture on shrinking of staple fabrics. S. B. Pakshver, S. S. Frolov, and Va. Khalabrin (Chem.-Technol. Inst., Ivanovo). Tekhn. Prom. 15, No. 3, 33-4(1935).—A discussion.
Elisabeth Barabash

PAKSHVER,A.B., professor, doktor tekhnicheskikh nauk; FROLOV,S.S., kandidat tekhnicheskikh nauk, dotsent; SKOROKHODOVA,Z.A., laborant

Effect of load on the shrinkage of wet staple fiber fabric. Tekst. prom.15 no.10:45-46 O'55. (MLRA 8:12)
(Textile fabrics)

Ivanov Chem. Tech. Inst

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USSR

Structure of high-molecular compounds. IX. Mechanism of interaction between polyamide fiber and phenol. V. D. Tatyushkina, A. B. Pakshver, and S. S. Frolov. *Kolloid. Zhur.* 17, 61-7(1955); cf. *C.A.* 48, 7003g.—Stretched capron filaments (11 μ in diam.) were immersed in aq. solns. of phenols, and from the rate of sorption the diffusion coeff. D (10^{-10} sq. cm./sec.) of phenol in the filament was calcd. It was, e.g., for 1% PhOH 0.78 and 3.00, 1% resorcinol (I) 0.32 and 1.27, 1.07% salicylic acid (II) 0.32 and 1.38, and 1% tannin 0.020 and 0.31 at 20° and 40°, resp. The amt. sorbed at equil. by one lactam radical (113 g.) increased almost proportionally to the phenol concn.; it was, e.g. at 20°, 12 and 108 millimoles for 0.011M and 0.106M PhOH, 13 and 90 millimoles for 0.009M and 0.091M I, 19 and 64 millimoles for 0.007M and 0.020M II, and 0.4 and 1.2 millimoles for 0.0006M and 0.0024M tannin. At 0° the sorption was, e.g., 10% greater, and at 40° 20% less than at 20°. PhOH and I are attached to the NH group of caprolactam by a H bond whereas II is attached both to the NH and the terminal NH_2 groups. The great temp. coeff. of D shows that the mol. structure of the fila-

POKROVSKIY, L.I.; FROLOV, S.S.

Simplified method of obtaining cross sections of synthetic fibers. Tekst.prom. 19 no.1:58 Ja '59. (MIRA 12:1)
(Textile fibers, Synthetic--Testing)

30(1) SOV/35-59-2-29/48

AUTHOR: ~~Frolov, S.S.,~~ Candidate of Technical Sciences; Pokrovskiy, L.I., Engineer (Ivanovo)

TITLE: Polymers - Into the Soil (Polimery - v pochvu)

PERIODICAL: Nauka i zhizn', 1959, Nr 2, p 68 (USSR)

ABSTRACT: This article recommends the use of synthetic resins for the stabilization of soils and ground, the fight against erosion, and the alteration of other soil qualities. The use of chemical preparations as molten sulphur, cement, iron salts, calcium, magnesium etc. is not economical in view of the large quantities of these materials needed in each case (10-15% of the weight of the soil). Polymers however, to be used for the stabilization of the soil, can be introduced in smaller quantities (1-0.01%). New preparations useful for the treatment of the soil are silico-organic compounds, anilinoformaldehyde resins and, par-

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SOV/35-59-2-29/48

Polymers - Into the Soil

ticularly, acrylic compounds polymerizing in the soil. Calcium acrylate appears to be a very good stabilizing agent. This monomer in powder form easily dissolves in water. If a catalyzer (ammonium persulphate) is added to the solution, polymerization begins at very low temperatures (near zero). The efficiency of calcium acrylate is based on the ion exchange of calcium with ions contained in the particles of the soil and subsequent polymerization of the acrylate molecule. Copolymers are also valuable for changing the quality of the soil.

Card 2/2

S/183/60/000/003/012/016/XX
B004/B067

AUTHORS: Bykov, A. N. and Frolov, S. S.

TITLE: Change in the Properties of Cellulose Materials on Freezing

PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 33-37

TEXT: The authors studied the effect of low temperatures on the degree of polymerization of cotton cellulose and on the strength of viscose fibers. Cellulose samples were treated with water or 5-10% NaOH at +20, -20, and -75°C for 45 min. The degree of polymerization was determined viscosimetrically. Furthermore, the authors studied the capability of thus treated cellulose of adsorbing iodine and direct dyes by means of a КОЛ1М(KOL-1M) colorimeter. An N. V. Smirnov dynamometer was used for measuring the strength of the viscose fibers which had been subjected to the same treatment. Finally, the authors studied the change in the properties of cellulose and viscose fiber on freezing it two or three times. They arrived at the following conclusions: 1) The structure of cotton cellulose and viscose fibers frozen in water is weakened considerably. For cellulose, the degree of polymerization decreases and the reactivity increases. This effect increases with decreasing freezing temperature, and is the result

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Change in the Properties of Cellulose Materials on Freezing S/183/60/000/003/012/016/XX B004/B067

of a rupture of macromolecules caused by ice crystals. 2) The structure of cotton cellulose is most affected. The changes in physical properties of viscose fibers whose degree of polymerization is already lower, and whose molecular structure is looser, are less important. 3) Freezing in alkaline solutions reduces the degree of polymerization of cellulose less than freezing in water. It is assumed that the action of alkali caused already a decrease in polymerization, thus weakening the subsequent effect of freezing. 4) Freezing and rethawing reduce the strength of viscose fiber. 5) Repeated freezing further weakens the molecular structure of cellulose and the strength of the fiber, but this effect decreases with the number of freezing processes. The authors mention Z. A. Rogovin, R. S. Neyman, T. I. Rudneva, N. I. Nikitin, N. I. Klenkova, A. A. Berlin, and Ye. A. Penskaya. S. A. Luk'yanova assisted in the experimental work. There are 3 figures, 6 tables, and 10 references: 8 Soviet and 2 German.

ASSOCIATION: Ivanovskiy KhTI (Ivanovo Institute of Chemical Technology)

Card 2/2

TERENT'YEV, G.A.; FROLOV, S.S.

Methods for determining the quantitative composition of cotton and rayon staple fiber blends. Izv.vys.ucheb.zav.;tekh.tekst.prom. no.4: 87-92 '60. (MIRA 13:9)

1. Ivanovskiy tekstil'nyy institut im. M.V. Frunze i Ivanovskiy khimiko-tekhnologicheskiy institut.
(Textile fibers)

FROLOV, S.S.; BYKOV, A.N.

Inclusion as a method for determining the degree of swelling of cellulose. Khim. volok. no. 6:22-24 '60. (MIRA 13:12)

1. Ivanovskiy khimikho-tekhnologicheskiy institut.
(Cellulose)

POKROVSKIY, L.I.; FROLOV, S.S.

Manufacture of cellulose sponges. Plast. massy no.12:64-66 '60. (MIRA 13:12)

(Plastics) (Viscose)

S/183/61/000/001/003/006
B101/B205

AUTHORS: Bykov, A. N., Frolov, S. S.

TITLE: Synthesis and study of colored polymers of caprolactam

PERIODICAL: Khimicheskiye volokna, no. 1, 1961, 15-17

TEXT: This paper deals with the direct synthesis of colored high-molecular polymers, especially with the sythesis of colored polycaprolactams, using colored diamines and dicarboxylic acids as stabilizers of the polymer chain growth, as well as a colored polyamide. In addition, the properties of the synthesized products are described. The following colored diamides have been used: safranine, chrysoidine, fuchsin, and Basic Brown 2K (2K). The colored dicarboxylic acids were obtained by diazotizing either p-aminobenzoic acid or anthranilic acid and coupling the salt of diazonium with an aminobenzoic acid. The synthesis was performed in analogy to that of diphenic acid. The following data are presented for the colored dicarboxylic acids: product from anthranilic acid: melting point: 218°C; number of carboxyl groups per molecule: 1.95; color: Bordeaux red; soluble in alcohol and

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S/183/61/000/001/003/006
B101/B205

Synthesis and study ...

alkalies; product from p-aminobenzoic acid: melting point: 178°C; number of carboxyl groups: 2; color: yellow; soluble in alkali, alcohol, and acetone. The colored polyamide was obtained by polymerization of sebacic acid with hexamethylene diamine and safranine (1:1). The synthesis of colored polycaprolactam with colored dicarboxylic acids was carried out by polymerization of caprolactam in the presence of water and 0.4-0.5% of azobenzene dicarboxylic acid in sealed ampoules at 245-280°C for 10 hr. Synthesis with diamines was performed by addition of safranine (0.03, 0.05, 0.1, or 0.2%), chrysoidine (0.1, 0.3, 0.5, 1, or 3%), fuchsin and Basic Brown 2K (0.1 or 0.5%). 0.05, 0.1, 0.3, or 0.4% of the colored polyamide was added to caprolactam. Polymerization with these additives was carried out at 225-230°C within 8 hr. The visible and ultraviolet absorption spectra of the resulting copolymers were taken with СФ-2М (SF-2M) or СФД-1 (SFD-1) spectrophotometers and compared with those of pure coloring additives. The properties of the colored polycaprolactams obtained are listed in Table 2. A figure shows a comparison between the absorption spectrum of pure safranine and that of the copolymer of safranine and caprolactam. Excessive addition of diamine was found to deteriorate the properties of

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Synthesis and study ...

the fiber. A molecular weight of 18,000-20,000 was calculated from the relative viscosity of a 1% solution in H_2SO_4. The assumption that these substances are perfect compounds was proved by the fact that all of them could be precipitated from their solution in 40% H_2SO_4 by means of water without any change in their color. The importance of obtaining colored polycaprolactam is that it eliminates the necessity of dyeing fabrics and makes it possible to extend the list of polymers that have direct practical use. The experiments were conducted with the assistance of Engineer V. G. Nemtsova. There are 1 figure, 2 tables, and 2 Soviet-bloc references.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanovo Institute of Chemical Technology)

Legend to Table 2: 1: Measured values; 2: safranine; 3: chrysoidine; 4: fuchsin; 5: Basic Brown; 6: colored polyamide; 7: colored dicarboxylic acid (from anthranilic acid); 8: content of coloring additives; 9: melting point; 10: relative viscosity of 1% solution; 11: solubility in 40% H_2SO_4; 12: solubility in phenol; 13: solubility in acetone; 14: solubility in

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benzene; 15: solubility in ether; 16: color; 17: soluble; 18: insoluble; 19: pink; 20: pale pink; 21: brown; 22: yellowish-pink; 23: light brown; 24: lilac; 25: light lilac;

1 Показатели	2 Сафранин				3 Хризоидин					4 Фуксин		Основной коричневый 5		Цветной полиамид 6				Цветная азобензолдикарбоновая кислота (из антраниловой) 7	
	8 содержание цветного компонента, %																		
	0,2	0,1	0,05	0,03	3,0	1,0	0,5	0,3	0,1	0,5	0,1	0,5	0,1	0,4	0,3	0,1	0,05	0,4	0,5
9 Температура плавления, °C	213	—	215		208	213	215			213	214	214	215	212		213		214	212
10 Вязкость (относительная) 1%-ного раствора	—	2,21	—	—	—	2,50	2,56	—		—		—		2,65	—	2,80	—	—	
11 Растворимость, % в 40%-ной H_2SO_4	13 Растворим				13 Растворим					13 Растворим		13 Растворим		13 Растворим		13 Растворим		13 Растворим	
12 в феноле	»				»					»		»		»		»		»	
13 в ацетоне	14 Нерастворим				14 Нерастворим					14 Нерастворим		14 Нерастворим		14 Нерастворим		14 Нерастворим		14 Нерастворим	
14 в бензоле	»				»					»		»		»		»		»	
15 в эфире	»				»					»		»		»		»		»	
16 Цвет	Розовый 17		Бледно-розовый 20		Коричневый 21		Желто-розовый 22			Бледно-розовый 20		Светло-коричневый 23		Сиреневый 24		Светло-сиреневый 25		Желто-розовый 22	

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Synthesis and study ...

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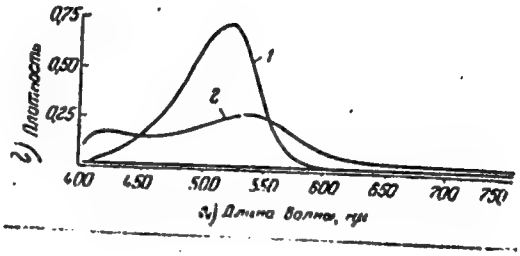
Legend to figure: 1: safranine;
2: caprolactam + safranine;
a) wave length; b) light absorption.



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BYKOV, A.N.; FROLOV, S.S.

Synthesis and study of colored epoxide resins. Plast.massy no.10: 20-22 '61. (MIRA 15:1)

(Epoxy resins)

VAYMAN, E.Ya.; POKROVSKIY, L.I.; FROLOV, S.S.

Quantitative determination of carbozyl groups in polyamides. Zhur. prikl. khim. 34 no.1:232-233 Ja '61. (MIRA 14:1)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Polyamides) (Carboxyl group)

POKROVSKIY, L.I.; FROLOV, S.S.

Synthesis of hydroquinono o,o'-diacetic and 2,2-bis-(4-hydroxyphenyl)-propane o,o'-diacetic acids and their use in the production of polymers. Zhur.prikl.khim. 34 no.9:2126-2128 S '61. (MIRA 14:9)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Acetoacetic acid)

S/064/62/000/004/002/002
B101/B138

AUTHORS: Paykachev, Yu. S., Frolov, S. S.

TITLE: Pigments on the basis of synthetic resins

PERIODICAL: Khimicheskaya promyshlennost', no. 4, 1962, 12-13

TEXT: The article discusses synthesis of macromolecular azo pigments on the basis of novolac phenol-formaldehyde resins obtained at a molar ratio C_6H_5OH : HCOH = 1 : 0.7 with HCl as catalyst. The molecular weight of the resins was 700-800. Resins with cross-linked structure add no diazo component. Amines (aniline, p-nitroaniline, m-nitroaniline, α-naphthylamine, benzidine, m-nitro-o-anisidine) and diazo dyes were used as diazo components. Combination of the diazo component with the resin was obtained in two ways: (a) The diazotized amine together with sodium acetate was added to the methanolic solution of the resin at 3-4°C. The pigment precipitated as amorphous powder. (b) The finely ground resin was suspended in water with alizarin oil as peptizer, and made to react with the diazo component. High dilution is required to prevent aggregation of the resin owing to swelling in the alkaline medium. The pigments showed

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more intensive coloring power than those on phenol base, and a high molecular weight (1300-2000) which makes migration of the pigments difficult (the diffusion rate of high-molecular pigments in gelatine gel was only 1/3 that of the low-molecular ones). Pigments on novolac resin base cannot be hardened, but those on resol base can, by boiling in 0.1 N alkali. Their thermal stability increases to 200°C. With amines, yellow-to-brown pigments were obtained. With diazo dyes, pigments of blue, green, red, and other colors could be prepared. The pigments are soluble in organic solvents. Their melting point (100-200°C) depends on the m.p. of the initial resin and on the content of azo component: 20% azo component resulted in a lower m.p. than 50% azo component. The stability of the pigments in coatings and other material is at present under examination. There is 1 table.

PAYKACHEV, Yu.S.; FROLOV, S.S.; YERMOLAYEVA, Ye.A.; Prinimala uchastiye DROZDOVA, T.A.

Preparation of colored products based on polystyrene. Plast. massy no.8:11-13 '63. (MIRA 16:8)

(Styrene polymers) (Pigments)

BORODKINA, N.I.; FROLOV, S.S.; MOL'KOVA, G.N.

Preparation and study of products based on the water-soluble condensates of acetone with formaldehyde. Izv.vys.ucheb.zav.;khim. i khim.tekh. 6 no.2:299-304 '63. (MIRA 16:9)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra tekhnologii khimicheskikh volokon.
(Acetone) (Formaldehyde) (Resins, Synthetic)

S/080/63/036/002/012/019
D403/D307

AUTHORS: Borodkina, N. I. and Frolov, S. S.

TITLE: Water soluble condensation products of acetone and formaldehyde

PERIODICAL: Zhurnal prikladnoy khimii, v.36, no. 2, 1963, 408-415

TEXT: The present work is concerned with the study of the conditions of synthesis, composition and properties of the water soluble CH_2O-$(CH_3)_2CO$ condensate (A). The effects of catalyst, CH_2O concentration, temperature, time and of the molar ratio of the 2 reactants (n) were investigated, finding that the best results were obtained with NaOH, taken in an amount equal to 0.005 g-moles/mole CH_2O, CH_2O concentration of 36- 37% by volume, at 40 - 45°C, with n = 1. The reactions were followed by changes in the refractive index, relative viscosity, pH, and consumption of formaldehyde. A is a neutral, polar, greenish yellow, viscous liquid, miscible with water in all proportions, which cannot be distilled or crys-

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tallized, soluble in lower alcohols, glycols, glycerine, carbonyl compounds, dimethylformamide, CH_3COOH and HCOOH, insoluble in benzene, benzol, diethyl ether, with a specific gravity of 1.206 - 1.218 and a refractive index of 1.485 - 1.493. Study of molecular weight, elemental composition, specific refraction and functional group contents showed that A is not a rigidly definable compound. It has not so far been obtained in the pure state, owing to possible conversions from one form into another (by hydration or dehydration) or to possible admixtures of isomers. There are 5 figures and 2 tables.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanova Institute of Chemical Technology)

SUBMITTED: October 24, 1961

16(1) PHASE I BOOK EXPLOITATION SOV/2061

Baranenkov, G. S., Boris Pavlovich Demidovich, V. A. Yefimenko, S. M. Kogan, G. L. Lunts, Ye. F. Porshneva, Ye. P. Sycheva, S. V. Frolov, R. Ya. Shostak, and A. R. Yampol'skiy

Zadachi i uprazhneniya po matematicheskomu analizu dlya vtuzov (Problems and Exercises in Mathematical Analysis for Vtuzes) Moscow, Fizmatgiz, 1959. 472 p. 40,000 copies printed.

Ed. (Title page): Boris Pavlovich Demidovich; Tech. Ed.: K. F. Brudno; Ed. (Inside book): N. A. Ugarova.

PURPOSE: This book is approved by the USSR Ministry of Higher Education as a textbook for students of vtuzes, especially correspondence students and evening students specializing in mechanical engineering. It may also be used for independent study.

COVERAGE: The book is a collection of 3193 problems on higher mathematics (excluding analytic geometry) arranged in systematic order for vtuzes. At the beginning of each chapter a short theoretical introduction, necessary formulas, and solutions of more important typical problems are given. Answers are given for all problems, and for the more complicated ones hints and drawings are provided, making the book more useful to correspondence students. The authors give special attention to the more important parts of the subject, such as, calculation of limits, differentiation and integration technique, construction of graphs, application of differential and integral calculus, series, and solution of differential equations. Chapters covering these subjects, therefore contain more problems than the others. The authors thank Docent S. M. Kuz'min, Docent Ye.A. Lubny-Gertsyk, instructors M. V. Sakharov, G. V. Tolstova, and L. Z. Yudelevich, Professor A. P. Yushkevich, Docent I. M. Bronshtevn, Ye. A. Soboleva, the Moskovskiy energeticheskiy institut (Moscow Institute of Energetics) Vsesoyuznyy zaochnyy inzhenerno-stroitel'nyy institut (All-Union Civil Engineering Correspondence Institute), Docent R. S. Garter, and N. A. Ugarova, editor of Fizmatgiz, for help in preparing the book. There are no references.

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Investigation of blast furnace smelting using natural gas. Stal' 22 no.6:483-486 Je '62. (MIRA 16:7)

(Blast furnaces—Equipment and supplies)

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1. Department of Normal and Pathological Physiology, Ivanovo Agricultural Institute.

FROLOV, T.V., kand. sel'skokhoz. nauk

Contribution of the State Nikita Botanic Gardens to the development of the industry of essential oils. Masl.-zhir. prom. 28 no.10:10-12 O '62. (MIRA 16:12)

1. Gosudarstvennyy Nikitskiy botanicheskiy sad.

FROLOV, T.V., kand.sel'skokhoz. nauk

Basic achievements of the Nikita Botanical Garden in introducing and breeding industrial crops. Agrobiologiia no.3:451-455 My-Je '63. (MIRA 16:7)

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(Nikita (Crimea)--Plant introduction)
(Nikita (Crimea)--Plant breeding)

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(Airplanes--Equipment and supplies)
(Rebrov, M.F.)

SOBOLEV, V.; FROLOV, V.

Practice of shifting industrial enterprises to a five-day work-week with two days off. Sots. trud 6 no.9:33-40 S '61. (MIRA 14:9)

(Hours of labor)

FROLOV, V.; SYUL'ZYAKOV, T. (selo Styukhino, Pokhvistnevskogo rayona, Kuybyshevskoy obl.); TOLSTONOG, Ya., inzh.-ekonomist

Readers' letters. Sel'. stroi. 16 no.1:29-30 Ja '62. (MIRA 16:1)

1. Glavnyy mekhanik Soveta Kurganskoy oblastnoy mezhkolkhoznoy stroitel'noy organizatsii (for Frolov).
(Construction industry)

FROLOV, V.

RC oscillator. Radio no.6:51-52 Je '64. (MIRA 17:10)